

**Nutrient Management Training and Certification Requirements
Technical Advisory Committee Meeting
VT/UVA Richmond Center
2810 N. Parham Road, Suite 300
Richmond, VA**

September 9, 2004

Welcome and Introductions

Ms. Denckla Cobb and Mr. Bruce Dotson, both from the Institute for Environmental Negotiation, shared the responsibilities for facilitating the meeting. A listing of committee meeting attendees is provided in Attachment #1.

Ms. Denckla Cobb said that members had been provided with a copy of the minutes from the last meeting. She asked that members review the minutes over lunch and be prepared to comment following lunch.

The facilitator noted that this would be the final of four meetings. However, TAC participants may provide comments on the draft regulatory revisions discussed at these TAC meetings up until September 17, 2004. Contact information for Mr. Perkinson was provided.

The facilitator reviewed the TAC Goals in each of four areas: Administrative, Economic, Environmental and Social. The facilitator also viewed the five principles for P criteria as established by the committee.

- Must protect water quality
- Must be straightforward/time efficient
- Must produce consistent results
- Must be easy to understand
- Must be compatible with nutrient management software.

Overview of Past Meetings and Rationale of Current Staff Proposals

The facilitator noted that the first meeting had identified critical issues. At the second meeting consensus narrowed the process to three options. Since that time those have been narrowed to two basic proposals (P-Index and Poultry + Cap + Erosion).

The facilitator noted that a consensual agreement on the proposals was not expected from this meeting.

Mr. Perkinson noted that a committee member had asked for the comparison of the two remaining plans (options d & e). He presented the following handout:

Comparison Scenarios Between (a) Soil Test Phosphorus, (b) Poultry Waste Mgt. Act, (c) Environmental Threshold Phosphorus, (d) Phosphorus Index, (e) Poultry w/Cap & Erosion.

Scenario	Soil Test P	Poultry Waste Mgmt. Act	Environmental Threshold	Phosphorus Index (P-Index)	Poultry+ Cap+ Erosion
1. 300 ppm P	0 P	1 x CR	1 x CR	1 x CR	1 x CR
2. 320 ppm P	0 P	1 x CR	0 P	0 P	0 P
3. 205 ppm P	0 P	1 x CR	1 x CR	0 P	0 P
4. 175 ppm P	0 P	1 x CR	1 x CR	1.5 x CR	1 x CR
5. 100 ppm P	0 P	1 x CR	1.5 x CR	1.5 x CR	1 x CR
6. 100 ppm P	0 P	1 x CR	1.5 x CR	1 x CR	1 x CR
7. 100 ppm P	0 P	1 x CR	1.5. x CR	0 P	1 x CR

Scenario 1 through 4 are described in The Virginia Phosphorus Index Version 1.3 Technical Guide on pages 22- 29.

Scenario 5 is the same as scenario 1, but uses 100 ppm P soil test instead of 300 ppm.

Scenario 6 is the same as scenario 1, but uses a soil loss of 8 tons per acre instead of 4 tons per acre and 100 ppm P soil test instead of 300 ppm.

Scenario 7 is the same as scenario 1, but uses a soil loss of 10 tons per acre instead of 4 tons per acre and 100 ppm P soil test instead of 300 ppm.

A participant noted a concern from the previous meeting regarding which of the two plans would be the best for the farmer to understand and for the planner to write. He noted that as crops change the plans have to change. He stated that he felt that the P-Index would be very difficult to write and extremely difficult for the farmer to follow.

He noted that while the P-Index may look the best for nutrient reduction, what is on paper is not always best for the field.

Another participant noted that a dairy or poultry operation with little acreage to spread manure would also have very little opportunity to transport.

A participant noted that his concern was over the long term in trying to bring soil P levels down. He suggested that the process start with the P management for a five-year period. After that time, the cut off level where no P is applied could ratchet down from 65 to 50 percent saturation. By the end of 20 years it could be at 20 percent.

He said this would allow a 20-year period in which to develop alternative uses for the land and for waste disposal.

Another participant said that he could accept a phased in approach if it started with a minimum rate of crop removal and phase into a cap where no P is applied.

Draft of Staff Proposed Regulatory Language: Review and Discussion

Staff distributed a draft of the proposed regulatory language. A copy is attached as Attachment #2.

Staff explained that the proposal was to use the phosphorus index as a base method. It was noted that this is not a final determination. However, if that were to be done, the changes noted in the handout would be needed.

Staff indicated that the plan is still subject to input and thought.

4VAC5-15-140 – Nutrient Management Plan Content

The following concerns/comments were noted by participants:

- There was a concern with the identification of waterways.
- It was suggested that the required map include streams when using the P index.
- There was concern that small changes would require plan modification.
- A rapid method of erosion assessment is anticipated.
- It is important to note that trained people do make judgements (may need to add P index, stream identification)
- For simplicity, there should be one method of assessing phosphorus.
- Stream and buffer definitions should be clarified. (i.e. ditch, drainage ways, distance to stream, setback).
- Consider repeating key P index definitions in the regulations
- Make sure the regulations are consistent with other regulations (Bay Act, etc.)

4VAC5-15-150 – Required Nutrient Management Procedures

Staff said that this section contained the technical nuts and bolts for the development of a plan.

Staff noted that unless a change is made it would be possible under this section to have two plans to cover different parts of an operation.

The following concerns were noted with this section:

- Staff should clarify DEQ's differentiation between requirement to manage nutrients and requirement for nutrient management plans.
- Change "shall" to "should" not exceed crop nutrient needs for inorganic nutrient sources.
- Concern is that farmers should be able to average applications if they are very close over several fields.
- Concern that farmers would apply more than needed and not reduce nutrients.
- Consider language that enables farmer to "average" applications over multiple years. This would allow the farmer to include a higher rate of inorganic in one year then lower the application rate the following year.
- Suggestion to use RUSLE2 as an option in lieu of a soil conservation plan.
- Concern that the phrases "wherever possible" and "if that is not possible" should be eliminated.
- Suggestion that the "latest P Index" by Virginia Tech be specified.
- Concern as to whether raising the pH actually impacts or harms crops.
- Should clarify that commercial fertilizer and not organics are intended.
- Frozen and snow covered should be better defined. (i.e. depth of snow)
- "True emergency" should be defined.
- Emergency applications should be tracked into the next crop cycle.
- Modify the language that says that if the crop changes, the nitrogen needs to change.

4VAC-15-10 – Definitions

The following concerns were noted regarding the definitions.

- Sinkholes should be identified on maps.
- How is a sinkhole defined? Note that this is in the best judgment of the planner.
- Be more specific regarding a Certified Nutrient Management Planner.
- Should triticale and oats be added to cereal grains?
- Clarify "cool season crops" either with "such as" or a list.
- For the P-index add language "a value computed by"
- "Revised 2004" can reference version approved by DCR
- Under soil conservation plan – allow for the possibility of an independent certified soil conservation planner.
- Do independent planners need approval from the local SWCD Board?

4VAC-15-40 – Eligibility Requirements

Staff noted that the attempt was to expand the definitions of experience and education to be more considerate of those with degrees not necessarily directly related to agriculture. For example, those with geology or forestry degrees would also meet the education component if they had some coursework in soils, etc.

A participant suggested that DCR consider waiving the fee for other agencies. Staff noted that this would mean about half of those certified would not pay the fee. The consideration for the fee was that waiving it for government employees would have a negative impact on the private sector.

4VAC- 15-100 – Record keeping and reporting requirements

Staff noted that there were minimal changes to this section.

Staff noted that plan reviews are completed at the planner's location.

A participant asked if Section 4 VAC-15-110, subsection 5 could be modified to read "or revision thereof."

Another participant noted that they would like to see the ability for a farmer with a plan to have access to an appeals or arbitration process.

Comments from the Public

There was no public comment.

Next Steps and Potential Future Role of Technical Advisory Committee

The facilitator noted that any further comments should be submitted to DCR by Friday, September 17.

Staff noted that the document was not in final form. Comments received at the TAC meetings and prior to September 17 would be considered. At the time of publication there will be an opportunity for public comment.

Staff thanked committee members for their input.

A participant asked about the process for the public comment period and the economic analysis.

Staff noted that the goal is to have the process completed by Spring 2005.

There being no further comment, the meeting was adjourned.

Attachment #1
Attendees List

Hobey Baughan for George Ashman
Dr. Tom Benzing, CNMP, James Madison University and Clean Water 2000
Jim Tate, Hanover-Caroline SWCD for Sharon Conner
Dr. Theo Dillaha, Virginia Tech Biological Systems Engineering Dept.
Gary Flory, CNMP, Virginia Department of Environmental Quality
Gerald Garber, Augusta County
Ann Jennings, Chesapeake Bay Foundation
Lynton Land, Northumberland Association for Progressive Stewardship
Chris Lawrence, CNMP, USDA Natural Resources Conservation Service
Glenn Martin, Virginia Department of Agriculture and Consumer Services
Peter Maybach, CNMP, M&M Consulting
Steve McMahan, CNMP, Synagro
Mary Leigh Wolf, VA Tech Crop & Soil Env. Science Dept. for Dr. Greg Mullins
Wilmer Stoneman for Bill Nelson
Dr. Cal Sawyer, Virginia Department of Health
Joedy Sheets, CNMP, Valley Fertilizer & Chemical
Kay Slaughter, Southern Environmental Law Center
Dawn Williamson, Murphy-Brown for Kraig Westerbeek

DCR Supporting Technical Staff

Jack Frye, Division Director of Soil and Water Conservation
Stuart Wilson, Asst. Division Director for NPS Programs
Russ Perkinson, CNMP – Nutrient Management Program Manager
David Kindig, CNMP – Nutrient Management Training and Certification Coordinator
Dean Gall, CNMP, Nutrient Management Specialist
Joe Garner, CNMP, Nutrient Management Specialist
Scott Ambler, Nutrient Management Specialist

DCR Regulatory Staff

David Dowling, Policy and Planning Manager
Michael Fletcher, Director of Development

Facilitators

Tanya Denckla Cobb, UVA Institute for Environmental Negotiation
Bruce Dotson, UVA Institute for Environmental Negotiation

Others

Jacob Powell, Murphy-Brown
Karl Berger, Metro Washington COG
Susan Trumbo, Recycle Systems, Inc.
Katie Kyger, Virginia Agribusiness Council

Brock Herzberg, Virginia Farm Bureau
Dale Gardner, USDA
Eric Messick, JLARC

Attachment #2

DCR STAFF DRAFT OF 9/9/04

NUTRIENT MANAGEMENT TRAINING AND CERTIFICATION REGULATIONS

4VAC5-15-10. Definitions.

The words and terms used in this chapter shall have the following meanings unless the context clearly indicates otherwise.

"Application rate" or "nutrient rate" means the quantity of major nutrients, nitrogen as N, phosphorus as P₂O₅, and potassium as K₂O on a per acre basis to supply crop or plant nutrient needs, and to achieve realistic expected crop yields.

"Banding" or "sideband" means the placement of fertilizer approximately two inches to the side and two inches below the seed.

"Best management practice" means a conservation or pollution control practice that manages soil, nutrient losses, or other potential pollutant sources to minimize pollution of water resources, such as split applications of nitrogen, or use of cereal grain cover crops to trap available nitrogen and reduce soil erosion.

"Biosolids" means a sewage sludge that has received an established treatment for required pathogen control and is treated or managed to reduce vector attraction to a satisfactory level and contains acceptable levels of pollutants, such that it is acceptable for use for land application, marketing, or distribution in accordance with 12VAC5-585-10 et seq., Biosolids Use Regulations of the Board of Health.

"Broadcast" means the uniform application of a material over a field.

"Calibration" means the systematic determination of the operational parameters, such as speed and quantity delivered, of application equipment.

"Cereal grain" or "small grain" means barley, rye, or wheat.

"Certified nutrient management planner" or "nutrient management planner" or "planner" means ~~the person or persons who prepare nutrient management plans under these regulations~~ a person who holds a current Virginia nutrient management certificate.

"Cool season grass" means grass species of temperate zone origin which exhibit the greatest rates of dry matter production in the day/night temperature range of 60°/ 50°F to 80°/ 70°F and includes fescues, bluegrasses, and ryegrasses.

"Commonwealth" means the Commonwealth of Virginia.

"Cover crop" means a crop including, but not limited to, cereal grains, which is planted following the harvest of the preceding crop for the purpose of:

1. Seasonal protection of soil, or
2. Assimilation of residual nitrogen left from a previous crop or from continued mineralization of nitrogen.

"Crop" means cultivated plants or agricultural produce such as grain, silage, forages, oilseeds, vegetables, fruit, nursery stock, or turfgrass.

"Cropland" means land used for the production of grain, oilseeds, silage, industrial crops, and any other category of crop not defined as specialty crop, hay, or pasture.

"Crop nutrient needs" means the primary nutrient requirements of a crop determined as pounds of nitrogen as N, phosphorus as P_2O_5 , and potassium as K_2O required for production of an expected crop yield based upon soil analysis results as specified in Virginia Nutrient Management Standards and Criteria, revised 2004 or Virginia Commercial Vegetable Production Recommendations for 2004.

"Crop nutrient removal" means the amount of nutrients per acre expected to be taken up by a plant and removed from the site in the harvested portion at the expected yield level, generally expressed as tons per acre or bushels per acre, at rates specified in Virginia Nutrient Management Standards and Criteria, revised 2004.

"Crop rotation" means a method of maintaining and renewing the fertility of a soil by the successive planting of different crops on the same land.

"Department" means the Department of Conservation and Recreation.

"Double crop" means the production and harvesting of two crops in succession within a consecutive 12-month growing season.

"Dry manure" or "semisolid manure" means manure containing less than 85.5% moisture.

"Environmentally sensitive site" means any field which is particularly susceptible to nutrient loss to groundwater or surface water since it contains, or drains to areas which contain, sinkholes; or where at least 33% of the area in a specific field contains any of the following features:

1. Soils with ~~a leaching index above 10~~ high potential for leaching based on soil texture or excessive drainage;
2. ~~Sinkholes;~~
3. ~~2.~~ Shallow soils less than 41 inches deep likely to be located over fractured or limestone bedrock;

- 4. 3. Subsurface tile drains;
- 4. Soil with high potential for subsurface lateral flow based on soil texture and poor drainage;
- 5. Floodplains as identified by soils prone to frequent flooding in county soil surveys; or
- 6. Lands with slopes greater than 15%.

"Expected crop yield" means a realistic crop yield for a given farm field determined by using yield records or soil productivity information.

"Fertilizer" means any organic or inorganic material of natural or synthetic origin that is added to a soil to supply certain nutrients essential to plant growth.

"Field" means a unit of contiguous nonwooded land generally used for crop production that is separated by permanent boundaries, such as fences, permanent waterways, woodlands, croplines not subject to change because of farming practices, and other similar features or as determined by the United States Department of Agriculture Farm Service Agency.

"Field identification number" means a number used by a farmer (or the United States Department of Agriculture Farm Service Agency) to distinguish or identify the location of a field on a farm.

"Groundwater" means any water beneath the land surface in a water saturated layer of soil or rock.

"Grid soil sampling" means a process whereby farm fields or other areas are subdivided into smaller areas or squares for the purpose of obtaining more detailed soil analysis results.

"Hay" means a grass, legume, or other plants, such as clover or alfalfa, which is cut and dried for feed, bedding, or mulch.

"Hydrologic soil group" means a classification of soils into one of four groups, A, B, C, or D, according to their hydrologic properties, ranging from low runoff potential (high infiltration potential) in group A to high runoff potential (low infiltration potential) in group D.

"Incorporation" means the process whereby materials are mixed into soils and not exposed on the soil surface, such as would be achieved by disking one time to a depth of six inches.

"Industrial waste" means liquid or other waste resulting from any process of industry, manufacture, trade or business, or from the development of any natural resources.

"Irrigation" means the application of water to land to assist in crop growth.

"Irrigation scheduling" means the time and amount of irrigation water to be applied to an area for optimum crop growth and to minimize leaching and runoff.

"Leaching" means the movement of soluble material, such as nitrate, in solution through the soil profile by means of percolation.

"Legume" means a plant capable of fixing nitrogen from the atmosphere such as peas, beans, peanuts, clovers, and alfalfas.

"Legume nitrogen credit" means the amount of nitrogen a legume is expected to supply to a succeeding crop.

"Liming" means the application of materials containing the carbonates, oxides, or hydroxides of calcium or magnesium in a condition and in a quantity suitable for neutralizing soil acidity.

"Liquid manure" means manure containing at least 85.5% moisture or which can be applied through subsurface injection or surface application with liquid application equipment.

"Livestock" means domesticated animals such as cattle, chickens, turkeys, hogs, and horses raised for home use or for profit.

"Manure" or "animal waste" means animal fecal and urinary excretions and waste by products which may include spilled feed, bedding litter, soil, lactase, process wastewater, and runoff water from animal confinement areas.

"Mehlich I" means a specific soil analysis procedure developed by North Carolina State University to determine levels of certain nutrients in soils.

"Micronutrient" means a nutrient necessary only in extremely small amounts for plant growth.

"Mineralization" means the process when plant unavailable organic forms of nutrients are converted to a plant available inorganic state as a result of soil microbial decomposition.

"NRCS" means the United States Department of Agriculture, Natural Resource Conservation Service, formerly the Soil Conservation Service (SCS).

"Nutrient" means an element or compound essential as raw materials for plant growth and development such as carbon, nitrogen, and phosphorus.

"Nutrient content" means the percentage of any primary nutrients such as nitrogen as N, phosphorus as P_2O_5 , and potassium as K_2O contained in any type or source of plant nutrients.

"Nutrient management plan" or "plan" means a plan prepared by a Virginia certified nutrient management planner to manage the amount, placement, timing, and application of manure, fertilizer, biosolids, or other materials containing plant nutrients in order to reduce ~~pollution~~ nutrient loss and to produce crops.

"Nutrient Management Training and Certification Fund" means the fund established by §10.1-104.2 of the Code of Virginia to support the department's Nutrient Management Training and Certification Program.

"Organic nutrient source" or "organic source" means manure, biosolids, sludge, industrial waste, green manure, compost, or other plant or animal residues which contain plant nutrients.

"Organic residuals" means nutrients released over time from manure, biosolids, industrial wastes, legumes, or other organic sources of nutrients.

"Pasture" means land which supports the grazing of animals for forages.

"Person" means an individual, corporation, partnership, association, a governmental body and its subordinate units, a municipal corporation or any other legal entity.

"Phosphorus index means the Virginia Phosphorus Index Version 1.3 Technical Guide, Revised July 2004."

"Plant available nutrients" means the portion of nutrients contained in nutrient sources which is expected to be available for potential use by plants during the growing season or the crop rotation.

"Pre-sidedress nitrogen ~~test (PSNT)~~ test" or "PSNT" means a procedure used to help determine soil nitrogen level during a crop growing season.

"Primary nutrients" means nitrogen as N, phosphorus as P_2O_5 , and potassium as K_2O .

"Residual nutrients" means the level of nitrogen, phosphorus, and potassium remaining or available in the soil from previously applied nutrient sources, or unharvested plants or plant parts, or baseline nutrient levels in the soil.

"Runoff" means that part of precipitation, snow melt, or irrigation water that runs off the land into streams or other surface water which can carry pollutants from the land.

“RUSLE2” means the Revised Universal Soil Loss Equation Version 2 software package maintained by the NRCS.

"Secondary nutrient" means calcium, magnesium, or sulfur.

"Sewage sludge" or "sludge" means any solid, semisolid, or liquid residues which contain materials removed from municipal or domestic wastewater during treatment including primary and secondary residues. Other residuals or solid wastes consisting of materials collected and removed by sewage treatment, septage, and portable toilet wastes are also included in this definition. Liquid sludge contains less than 15% dry residue by weight or can be applied through subsurface injection or surface application with liquid application equipment. Dewatered sludge contains 15% or more dry residue by weight.

"Shall" means a mandatory requirement.

"Should" means a recommendation.

"Slope" means the degree of deviation of a surface from horizontal, measured as a percentage, as a numerical ratio, or in degrees.

"Sidedress" means the placement of fertilizer beside or between the rows of a crop after crop emergence.

"Sinkhole" means a depression in the earth's surface caused by dissolving of underlying limestone, salt, or gypsum having drainage patterns through underground channels.

"Slowly available nitrogen" means nitrogen sources that have restricted availability involving compounds which dissolve slowly, materials that must be microbially decomposed, or soluble compounds coated with substances highly impermeable to water such as urea formaldehyde based water insoluble nitrogen, sulfur coated urea, natural organics.

“Soil conservation plan” means a plan developed or approved by NRCS using the RUSLE2 procedure to estimate soil erosion.

"Soil erosion" or "erosion" or “soil loss” means the wearing away of the land surface by water, wind, or waves.

"Soil management group" means a grouping of soils based on their similarity in profile characteristics which affect crop production and require specific soil and crop management practices.

~~"Soil nitrate leaching index" means the potential for a given soil to be subject to nitrate leaching below the root zone.~~

"Soil pH level" means the negative logarithm of the hydrogen-ion activity of a soil which measures the relative acidity or alkalinity of the soil. The pH level affects the availability and plant utilization of nutrients.

"Soil productivity group" means a grouping of soils based upon expected yield levels for a given crop type.

"Soil series" means a classification of a specific soil type by name based on the chemical and physical properties of the soil.

"Soil survey" means a published or unpublished document developed by a governmental entity which includes detailed descriptions and classifications of soils, mapping of various soil series, and the interpretation of soils according to their adaptability for various crops and trees.

"Specialty crop" means vegetables, tree crops, perennial vine crops, ornamentals, horticultural crops, and other similar crops.

"Split application" means utilizing a sequence of two or more nutrient applications, separated by approximately three weeks or more, to a single crop in order to improve nutrient uptake efficiency.

"Surface water" means all water whose surface is exposed to the atmosphere.

"Tillering" is the formation of lateral shoots from the auxillary buds of small grains and grasses.

"Tissue test" means an analysis of crop tissue for the percentage of nitrogen at key growth stages, and used as an intensive nutrient management technique with small grain crops.

"Topdress" means broadcast applications of fertilizer on crops such as small grains or forage after crop emergence has occurred.

"Trap crop" means a timely planted cereal grain for the purpose of managing limited manure or sewage sludge storage availability.

"Turfgrass" means selected grass species planted or sodded and managed for such uses as home lawns, golf courses, office parks and rights-of-way.

"Volatilization" means a process by which nitrogen is lost to the atmosphere as ammonia gas.

"Warm season grass" means a grass species of tropical origin that exhibits the highest rate of dry matter production in the day/night temperature range of 90°/79°F at a

minimum to a maximum of 97°/88°F. Warm season grasses include zoysia and bermuda grasses.

"Water insoluble nitrogen" or "WIN" means a urea formaldehyde based slowly available nitrogen listed on fertilizer bags and reported as a percentage.

"Watershed" means a drainage area or basin in which all land and water areas drain or flow toward a central collector such as a stream, river, or lake at a lower elevation.

"Watershed code" means the letter and number used by the department to identify a watershed or hydrologic unit area.

"Zadoks' growth stage" means the numerical scale ranging from 0-93 which assigns values to small grain growth stages, e.g. Growth Stage 30 is just prior to the stem elongation phase in wheat growth.

4VAC5-15-20. Purpose.

A. This chapter governs the department's voluntary Nutrient Management Training and Certification Program for individuals who prepare nutrient management plans.

B. A nutrient management plan is prepared to indicate how primary nutrients are to be managed on farm fields and other land for crop production and in ways which protect groundwater and surface water from excessive nutrient enrichment. Plans contain operating procedures based on expected crop yield, existing nutrient levels in the soil, organic residuals, optimum timing and placement of nutrients, environmental resource protection, and agronomic practices such as liming, tillage, and crop rotation. The department shall certify the competence of individuals to prepare these plans and provide criteria relating to the development of nutrient management plans.

4VAC5-15-30. Certificates of competence.

A. This chapter applies to any individual seeking a certificate of competence as described in [§10.1-104.2](#) of the Code of Virginia.

B. Certificates of competence shall be issued by the department to certified nutrient management planners. The department may issue distinct classifications of certification based on areas of specialty, including agriculture and urban agronomic practices.

4VAC5-15-40. Eligibility requirements.

A. Certification may be obtained by satisfying all of the following requirements for certification:

1. Satisfactorily completing and submitting to the department an application in the form required by the department, including a statement of any felony convictions. Such application shall be submitted to the department at least 30 days before the approved examination date set by the department. The application shall request information relating to the person's education, work experience, knowledge of nutrient management, and willingness to abide by the requirements of these regulations;

2. Supplying proof of meeting one of the following:

- a. A copy of a college transcript indicating completion of a college degree with a major in an agriculturally related area with coursework in nutrient management courses such as soils, soil fertility, and plant science, and one year of practical experience related to nutrient management planning or implementation of nutrient management concepts and principles acceptable to the department, or
- b. A combination of education to include nutrient management related educational courses or training and a minimum of three years of practical experience related to nutrient management planning or implementation of nutrient management concepts and principles acceptable to the department;

3. Obtaining a passing score on each of the ~~essential components~~ parts of the nutrient management certification examination administered by the department; and

4. Submitting a \$100 certification fee by check or money order to the department.

B. Certificates shall be valid for two years and will expire on the last day of the expiration month. Certified nutrient management planners or applicants shall notify the department of any change in mailing address within 30 days of such change in address.

C. Individuals certified as nutrient management consultants by the State of Maryland or certified as nutrient management specialists by the Commonwealth of Pennsylvania will be eligible for certification in Virginia by complying with all requirements of these regulations except for subdivision A 2 of this section. These individuals may also substitute, for the requirements in 4VAC5-15-60 C, the attainment of a passing score on a Virginia specific examination component which shall include at a minimum the elements listed in 4VAC5-15-60 C 9 and C 10. The department, upon review, may accept or approve nutrient management certification programs of other states as satisfying partial requirements for certification.

4VAC5-15-50. Fees.

A. Fees shall be collected for certification and recertification to defray the administrative cost for the certification program.

B. A fee may be charged to supply training materials and present education and training programs, including continuing education, which support the certification program.

C. Fees are nonrefundable and shall not be prorated.

D. The certification fee of \$100 for the initial certification period shall be due with the application for certification. If the applicant is unsuccessful in achieving a passing score on the examination, the applicant may retake the examination at the next scheduled time. Applicants may retake the examination one time with no additional charge by resubmitting the application for certification.

E. All fees collected by the department shall be deposited in the state treasury Nutrient Management Training and Certification Fund and shall be used exclusively for the operation of the Nutrient Management Training and Certification Program.

4VAC5-15-60. Examination.

A. The department shall administer nutrient management certification examinations at least once per year. The examinations shall require a demonstration of the ability to prepare a nutrient management plan. The department may limit the number of applicants taking the examination based upon available examination space.

B. Applicants for certification shall achieve a passing score on each of the ~~essential components~~ parts of the nutrient management certification examination to become eligible for certification.

C. The examinations for persons involved in agricultural nutrient management shall address the elements listed below. To address nutrient management on urban land uses specialty specific examinations may be added to or substituted by the department for the elements below.

1. General understanding of overall nutrient management concepts such as nutrient cycling on farms, the purpose of nutrient management planning, economic aspects of nutrient use, and components of a nutrient management plan;
2. Basic soil science concepts such as soil physical and chemical properties including texture, structure, organic matter, and horizon development, and how such characteristics influence crop productivity and adaptation, water runoff, and infiltration;
3. Environmental management concepts such as the water cycle, nutrient loss mechanisms, environmental effects of nutrients in waters including Chesapeake Bay, identification of high risk sites relating to nutrient use and appropriate nutrient management practices to reduce nutrient losses;
4. Nutrient sampling, testing, and analysis such as basic sampling procedures, relationship of soil test level with likelihood of crop response, soil nitrate testing, manure and biosolids sampling and interpretation, and determining nitrogen supplied by legumes;

5. Basic soil fertility concepts such as relationship of soil pH to nutrient availability and toxicity, essential elements for crop growth, limiting factors to crop production, cation exchange capacity and related concepts, nutrient cycles, and forms of nutrients in soils;
 6. Fertilizer management concepts such as types of fertilizers, nutrient analysis of common materials and grades, basic calculations and blending, calibration of equipment, and application methods;
 7. Manure management concepts such as nutrient content and volume produced, determination of plant available nutrients, selecting sites for manure application, proper timing and placement, coordination of fertilizers with manure, application methods and calibration;
 8. Biosolids management concepts such as determination of plant available nutrients, nutrient content, forms of nutrients, types of sludges, coordination with fertilizer applications, and application methods;
 9. Nutrient management training and certification regulatory requirements, and requirements of other nutrient management related laws, regulations, and incentive programs; and
 10. Development of multiple components of nutrient management plans and completion of calculations comparable to development of nutrient management plans such as, but not limited to, determination of specific soil types in fields, determination of specific nutrient requirements based on soil productivity and soil analysis results, evaluation of field limitations based on environmental hazards or concerns, and interpretation of manure analysis results.
- D. An individual who is unable to take an examination at the scheduled time shall notify the department at least five days prior to the date and time of the examination; such individual will be rescheduled for the next examination. The department may consider accepting notice of less than five days due to individual hardship situations on a case-by-case basis. Failure to notify the department may require the individual to submit a new application and payment of fees in accordance with 4VAC5-15-40.
- E. The department shall establish acceptable passing scores for the examinations based on the department's determination of the level of examination performance required to show minimal acceptable competence.
- F. All applicants shall be notified of results in writing within 60 days of the completion of the examinations.

4VAC5-15-70. Training.

A. The department shall provide a training session on the mechanics of nutrient management plan development prior to scheduled examinations.

B. The department may provide a training course on concepts supporting and relating to nutrient management which may include: basic soil science; soil fertility; environmental management; fertilizer, manure, and biosolids management; and other relevant topics.

4VAC5-15-80. Certificate renewal.

The department will not renew a certificate if a proceeding to deny certification under 4VAC5-15-110 has begun, or if the department has found that the applicant violated any requirements of this chapter. A certificate is issued for two years and may be renewed on or before the expiration of a certificate by complying with all of the following requirements:

1. Submittal of a renewal application on the form the department requires;
2. Payment of a \$100 renewal fee to the department;
3. Submittal of proof of satisfactory completion of at least four hours of continuing education pre-approved by the department within the past two years. Requests for pre-approval of continuing education courses must be received at least 60 days prior to the expected course date or dates and must include a detailed syllabus indicating time to be spent on each topic area covered. Continuing education hours must be in subject matter consistent with 4VAC5-15-60 C. Department personnel may attend continuing education sessions to verify that the requirements are met. Proof of attendance must be verified by the course provider. The department may accept continuing education units obtained in Maryland and Pennsylvania if such continuing education units are specifically for the purpose of recertification in the state nutrient management certification program; and
4. Completion of at least one nutrient management plan or completion of four hours of continuing education pre-approved by the department within the past two years in addition to the requirements of subdivision 3 of this section.

4VAC5-15-90. Expiration of a certificate.

A. A certificate shall be deemed expired the day after the expiration date on the certificate if any of the requirements of 4VAC5-15-80 are not met.

B. Following the expiration of a certificate, reinstatement may be accomplished only by reapplication and compliance with all requirements of 4VAC5-15-40 A including the examination requirements.

4VAC5-15-100. Recordkeeping and reporting requirements.

A. Certified nutrient management planner reporting requirements. A person who holds a certificate under these regulations shall keep records and file with the department by September 30 of each year an annual activity report on a form supplied by the department covering the previous year (July 1 through June 30). The annual activity report shall contain the following information:

1. Name and certificate number of the certified nutrient management planner;
2. Any change of mailing address during the previous year;
3. Number of nutrient management plans completed;
4. Acreage covered by plans and planned acreage by county and state watershed codes specified by plan categories of new or revised;
5. Breakdown of planned acreage by cropland, hay, pasture, and specialty crops by county and watershed code specified by plan categories of new or revised; and
6. Other information indicating number of practices facilitated by the planner such as manure testing and use of the PSNT.

B. Certified nutrient management planner recordkeeping requirements. The department may periodically inspect nutrient management plans prepared by certified persons and required records for the purpose of review for compliance with 4VAC5-15-140 and 4VAC5-15-150. A certified nutrient management planner shall maintain the following plan records for a period of not less than three years from the date the plan was prepared:

1. A complete copy of each nutrient management plan prepared and shall make such plans available for inspection by department personnel upon request within ~~two weeks~~ one week of receiving such request;
2. Records for each plan with all of the following information if the information is not already contained in the plan:
 - a. Representative soil analysis results for fields, or field grids if grid soil sampling is used, dated not more than three years prior to the date the nutrient management plan was completed to include information on soil fertility levels for phosphorus and potassium, and pH level;
 - b. Copies of soil survey maps or a soil survey book containing maps for each field unless a soil survey has not been published for the county;
 - c. Yield records for each field to include calculations and documentation used to determine the planning yield if upward adjustments to soil productivity based yields were made to more than 20% of the fields covered by the plan;
 - d. Type and number of livestock, if any, as well as a description of the livestock to include average weight;

- e. Calculations or records indicating annual quantity of manure produced or expected to be produced; and
- f. Organic nutrient source analysis, if applicable, to include information on percentage of moisture, total nitrogen or total Kjeldahl nitrogen, ammonium nitrogen, total phosphorus, and total potassium.

3. A summary listing of all plans prepared to include landowner or operator's name and the date the plan was prepared or revised.

4VAC5-15-110. Compliance with regulations and disciplinary action.

If the department finds that a certified person or an applicant for certification violated any requirements of this chapter, including the circumstances listed below, the department may deny, suspend or revoke certification, following the informal fact-finding procedures of the Virginia Administrative Process Act (§9-6.14:1 et seq. of the Code of Virginia).

- 1. Providing misleading, false, or fraudulent information in applying for a certificate;
- 2. Providing the department with any misleading, false, or fraudulent report;
- 3. Offering or preparing a nutrient management plan claimed to be prepared by a person certified as a nutrient management planner in Virginia as provided by these regulations without a certificate;
- 4. Offering or preparing a nutrient management plan that does not comply with the requirements of these regulations;
- 5. Failing to promptly provide any report or to allow the department access to inspect any records required to be kept by these regulations;
- 6. Conviction of a felony related in any way to the responsibilities of a certified nutrient management planner.

4VAC5-15-120. Advisory committee.

The department may establish a nutrient management training and certification advisory committee. Advisors shall serve for a term of two years. Members shall be from the agricultural community, academia, industry, the environmental community, and appropriate government units.

4VAC5-15-130. Duties of other state agencies.

The provisions of this chapter shall not limit the powers and duties of other state agencies.

4VAC5-15-140. Nutrient management plan content.

A. A certified nutrient management planner shall prepare nutrient management plans which contain the information in subsections B through G of this section. For nutrient management plans covering nonagricultural, specialty land uses, for example residential lawns, office parks, and golf courses, the department may specify additional plan elements which are critical to the management of nutrients for a particular activity, and may eliminate requirements not pertinent to nonagricultural land uses.

B. Plan identification. Each plan shall be identified by a single cover sheet indicating:

1. Farmer/operator name and address;
2. Name and certificate number of certified nutrient management planner;
3. County and watershed code of land under the nutrient management plan;
4. Total acreage under the plan with double cropped acreage accounted for only once;
5. Acreage of cropland, hay, pasture, and specialty crops included in the plan for the first year of the plan;
6. Date the plan was prepared or revised; and
7. Type and approximate number of livestock, if applicable.

C. Map or aerial photograph.

1. Each plan shall contain a map or aerial photograph to identify:
 - a. The farm location and boundaries;
 - b. Individual field boundaries; and
 - c. Field numbers and acreages.
2. The map or aerial photograph shall be legible, with the features in subdivision 1 of this subsection recognizable. A farm sketch or soil survey map may be used when a map or aerial photograph is not available, if the features described in subdivision 1 of this subsection are recognizable.

D. Summary of nutrient management plan recommendations. Each plan shall contain one or more summary sheets that list the following information for each field:

1. Name of the farmer/operator;
2. Field identification numbers to include the United States Department of Agriculture Farm Service Agency tract and field numbers;

3. Field acreages;
4. Expected crops or crop rotations;
5. Crop nutrient needs per acre based on soil analysis results and soil productivity or ;
6. Legume nitrogen credits per acre;
7. Available nutrients in soil from previous crop and mineralization of organic residuals;
8. Recommended organic nutrient source application rates in tons per acre or 1,000 gallons per acre; plant available nitrogen as N, phosphorus as P_2O_5 , and potassium as K_2O per acre; and spreading schedule to include approximate months of application;
9. Expected days for incorporation of organic nutrient sources into the soil if organic nutrient sources will be used;
10. Commercial fertilizer rates and timing of applications, including split applications of nitrogen and the possible use of soil nitrogen test results on a field before sidedressing with nitrogen; and
11. Numerical phosphorus and potassium soil analysis results expressed as ppm P and K , pounds acre P and K or pounds per acre P_2O_5 and K_2O for all fields in the plan.

E. Individual fields may be grouped together if similar soil productivity levels, soil fertility levels, and environmentally sensitive site features exist pertaining to subsection D of this section.

F. Each plan shall also contain the following information in summary or narrative form:

1. Identification and management of environmentally sensitive sites;
2. Quantities of manure produced on the farm, available manure storage capacity, and manure analysis;
3. Total manure used as crop nutrients, if any, including manure from both on farm and off farm sources based on plan recommendations and total land requirements for manure utilization;
4. Quantity of unused manure, if applicable, and recommendations on appropriate use options;
5. Liming recommendations if soil pH is below the optimal range;

6. Recommendations or fact sheets to ensure efficient application of fertilizers and organic nutrient sources and other best management practices to reduce the potential for the degradation of surface and groundwater quality, which may include but are not limited to:

- a. Equipment calibration;
- b. Application timing and method;
- c. Crop rotation and agronomic practices;
- d. Soil nitrate testing; and
- e. Cover crop management;

7. Information on maintaining and updating a nutrient management plan. General comments about plan maintenance shall include:

- a. The length of time the plan is effective, not to exceed five years from the date the plan is developed; and
- b. Identification of circumstances or changes in the farm operation such as an increase in animal numbers that would require the plan to be updated prior to the time specified in this subdivision

8. Expected crop yields for each field for the planned crop rotation;

9. The following information for all fields where the phosphorus applications are based on the phosphorus index:

- a. A copy of the soil conservation plan if expected soil erosion for the phosphorus index was based on the soil conservation plan;
- b. Buffer widths and distances to surface waters in feet;
- c. Presence of contour planting at a maximum of 1% row grade, strip cropping or terraces;
- d. Required ground cover percentage for pastures stated as as <50% cover, 50-75% cover, or >75% cover; and
- e. Required crop residue condition at planting for cropland as <30% cover, 30-60% cover, or >60% cover; and

~~9.~~ 10. Other notes as needed pertaining to nutrient application, tillage, and other special conditions.

G. The nutrient management planner should incorporate additional plan requirements as appropriate if required by other specific regulatory or incentive programs which apply to a specific operator.

4VAC5-15-150. Required nutrient management plan procedures.

A. Nutrient application.

1. A certified nutrient management planner shall include, in each plan, nutrient application practices for each field in the plan. The nutrient application rates shall be calculated for nitrogen (N), phosphate (P_2O_5), and potash (K_2O). Individual field recommendations shall be made after considering nutrients contained in fertilizers, manure, biosolids, industrial wastes, legumes in the crop rotation, crop residues, residual nutrients, and all other sources of nutrients. Individual fields may be grouped together if similar soil productivity levels, soil fertility levels, and environmentally sensitive site features exist.

2. Nutrient application rates.

a. Determination of crop nutrient needs shall be consistent with tables and procedures contained in Virginia Nutrient Management Standards and Criteria, Revised ~~November 1995~~, 2004 and the Commercial Vegetable Production Recommendations, ~~1995~~ 2004 (Virginia Cooperative Extension Publication 456-420), and shall be based on soil test results for P_2O_5 and K_2O .

b. Nitrogen applications rates in nutrient management plans shall not exceed crop nutrient needs in subdivision 2 a of this subsection and phosphorus application rates ~~should~~ shall be managed to ~~reduce~~ minimize adverse water quality impacts. Phosphorus applications from inorganic nutrient sources shall not exceed crop nutrient needs based on a soil test. Whenever possible, phosphorus applications from organic nutrient sources should not exceed crop needs based on a soil test over the duration of the crop rotation. If this is not possible, ~~preference should be given to routing phosphorus in organic nutrient sources to fields having the lowest phosphorus soil analysis, fields to be rotated into crops such as alfalfa hay, or fields with predominately A and B slopes as identified in a soil survey~~ maximum phosphorus application rates and phosphorus control practices contained in nutrient management plans shall be consistent with the Virginia Phosphorus Index Version 1.3 Technical Guide, Revised July 2004. In calculating the soil loss input to the phosphorus index, the planner shall utilize either the soil erosion risk assessment procedure contained in Virginia Nutrient Management Standards and Criteria, Revised 2004 or the edge of field soil loss contained in a soil conservation plan approved by NRCS and developed using RUSLE2. If soil loss for use in the phosphorus index is based on a soil conservation plan, the crop rotations and tillage practices in the nutrient management plan shall be consistent with those contained in the soil conservation plan.

e. ~~The development and implementation of a comprehensive soil conservation plan or practices that meet the criteria for a conservation system contained in the United States Department of Agriculture NRCS Field Office Technical Guide shall be recommended by a nutrient management planner on sites designated as highly erodible land (HEL) by the NRCS where a soil analysis indicates a very high phosphorus level (55 parts per million or above using Mehlich I extraction procedures or other methods correlated to Mehlich I) and phosphorus applications from organic sources will exceed crop uptake. If such sites are established pastures, the certified nutrient management planner shall~~

~~recommend that pasture grasses or legumes be maintained at no less than a three-inch height in order to reduce runoff potential.~~

d.c. Recommended application rates for potassium, secondary nutrients, and micronutrients ~~should~~ shall be at agronomically or economically justifiable levels for expected crop production. Potassium applications sufficient to meet crop nutrient needs shall be included in nutrient management plans for all fields consistent with recommendations contained in Virginia Nutrient Management Standards and Criteria, Revised 2004.

e. d. Expected crop yield shall be determined from past crop yields or soil productivity on a given field. The farmer's past experience with crop yields in specific fields may be used to make reasonable adjustments to expected crop yields in lieu of verifiable yield records provided the upward adjustments impact no more than 20% of the fields on a particular farm. The calculation of expected crop yield shall:

(1) Be an average of the three highest yielding years taken from the last five years the particular crop was grown in the specific field, or

(2) Be based on and consistent with soil productivity information contained in Virginia Nutrient Management Standards and Criteria, Revised ~~November 1995~~ 2004.

f. e. Representative soil analysis results for fields shall be determined by using standard soil sampling and analysis methods according to Agronomy Monograph #9, American Society of Agronomy utilizing the Mehlich I extraction procedure for phosphorus or other methods approved by the department and correlated to Mehlich I and utilizing correlation procedures contained in Virginia Nutrient Management Standards and Criteria, Revised November 1995 2004. Soil analysis results shall be dated no more than three years prior to the beginning date of the nutrient management plan. A single composite soil sample should represent an area up to approximately 20 acres. Fields such as those common to strip cropping may be combined when soils, previous cropping history, and soil fertility are similar. Representative soil ~~samples~~ sample cores shall be obtained from the soil surface to a depth of ~~two to four inches~~ (0 – 4") for fields which ~~are not tilled~~ have not been tilled within the past three years, and from the soil surface to a depth of six ~~to eight~~ inches (0-6") for fields which are tilled or have been tilled within the past three years. Soil sampling of fields based on grids of subfield areas may be utilized.

g. f. For existing operations, the most recent organic nutrient source analysis results or an average of past nutrient analysis results ~~should~~ for the specific operation within the last three year period shall be used to determine the nutrient content of organic nutrient sources. For plans on new animal waste facilities, average ~~values~~ analyses published in Virginia Nutrient Management Standards and Criteria, Revised ~~November 1995~~ 2004, should be utilized unless proposed manure storage and treatment conditions warrant the use of alternative data. Plant available nutrient content shall be determined using the

mineralization rates and availability coefficients found in Virginia Nutrient Management Standards and Criteria, Revised ~~November 1995~~ 2004, for different forms and sources of organic nutrients. Mineralization of organic nutrients from previous applications shall be accounted for in the plan.

~~h. g.~~ The expected nitrogen contributions from legumes shall be credited when determining nutrient application rates at levels which substantially conform to those listed in Virginia Nutrient Management Standards and Criteria, Revised ~~November 1995~~ 2004.

3. Soil pH influences nutrient availability and crop nutrient utilization and should be adjusted to the level suited for the crop. Nutrient management plans shall contain lime recommendations to adjust soil pH to a level within the appropriate agronomic range for the existing crop or crop(s) to be grown. Recommendations shall address lime application if soil pH is below the optimal range. Nutrient management planners shall not recommend the application of lime, lime amended materials, or nutrient sources that will raise the soil pH to a level that exceeds the appropriate agronomic range for the growing crop or crop(s) to be grown based on recommendations contained in Virginia Nutrient Management Standards and Criteria, Revised 2004.

4. Nutrient application timing.

~~a. Timing recommendations for nutrient applications shall be as close to plant nutrient uptake periods as reasonably possible. To reduce the potential for nutrient leaching or runoff, a certified nutrient management planner shall recommend planting an agronomically feasible crop within 30 days of the planned nutrient application if no actively growing crop is in place. For organic nutrient sources, planned applications may be recommended between December 21 and March 16, if necessary, if a crop will be planted during the normal spring planting season and sites have low surface runoff potential due to slope or crop residue or if management practices such as injection are recommended to reduce the potential for surface runoff of organic nutrient sources. A certified nutrient management planner shall utilize procedures contained in Virginia Nutrient Management Standards and Criteria, Revised November 1995, to assist in determining the timing of nutrient applications.~~

a. Timing recommendations for nutrient sources containing nitrogen shall be as close to plant nutrient uptake periods as reasonably possible. A certified nutrient management planner shall utilize procedures contained in Virginia Nutrient Management Standards and Criteria, Revised 2004, to determine the timing of nutrient applications. To reduce the potential for nutrient leaching or runoff, a certified nutrient management planner shall recommend applications of nitrogen containing materials only to sites where an actively growing crop is in place at the time of application or where a timely planted crop will be established within 30 days of the planned nutrient application, except as specified in subsection b. If such nutrient applications are made to fall seeded crops such as small

grain trap crops, the crop planted shall be capable of germination and significant growth before the onset of winter so the crop is able to uptake the available applied nitrogen.

b. If necessary, organic nutrient source applications may be recommended within 60 days of planting a spring seeded crop to sites that: (i) are not environmentally sensitive sites as identified in 4VAC5-15-10 or Virginia Nutrient Management Standards and Criteria, Revised 2004, and (ii) have at least 60 percent crop residue cover existing to reduce the potential for surface runoff of organic nutrient sources if such sites contain slopes of greater than 7%.

~~b.~~ c. The nutrient management planner shall recommend split application of inorganic nitrogen fertilizers as starter or broadcast and sidedressing or top dressing in row crops and small grains consistent with procedures contained in Virginia Nutrient Management Standards and Criteria, Revised ~~November 1995~~ 2004, on environmentally sensitive sites as identified in 4VAC5-15-10. Split applications of inorganic nitrogen fertilizers and irrigation scheduling shall be recommended for crops to receive irrigation. The use of a pre-sidedress nitrogen test (PSNT) can help to determine additional nitrogen needs during the growing period. In lieu of split applications, the planner may recommend the application of the total nitrogen requirement for spring planted row crops within one week prior to planting if at least 50 % of the plant available nitrogen requirement of the crop is supplied with slowly available nitrogen sources.

c. d.. Nutrient applications on frozen or snow covered ~~grounds should be avoided~~ ground shall not be recommended in nutrient management plans. If an emergency situation such as storage system freeze-up necessitates the application of organic nutrient sources, ~~select fields which have slopes of less than 5.0% which are either planted in cover crops or have significant crop residue present~~ 7 % that have 60 % uniform ground cover from a existing crop such as small grain or fescue with exposed plant height of three inches may receive no more than 40 pounds of plant available nitrogen per acre.

5. Application method for nutrients.

a. The application of nitrogen shall be managed to minimize runoff, leaching and volatilization losses.

b. Applications of liquid manures or sludges utilizing irrigation shall not be recommended to be applied at rates above those contained in Virginia Nutrient Management Standards and Criteria, Revised ~~November 1995~~ 2004.

c. Plans shall not recommend liquid manure or sludge application rates utilizing nonirrigation liquid spreading equipment which exceed 14,000 gallons per acre (approximately one-half (0.5) inch) per application. The amount of liquid manure or sludge application in plans will not exceed the hydraulic loading capacity of the soil at the time of each application. If a subsequent pass across a field is necessary to achieve the desired application rate, the plan will allow for sufficient drying time.

d. Where possible, the planner should recommend that biosolids, industrial wastes, and manures be incorporated or injected in the crop root zone. Lime stabilized biosolids should not be injected due to the creation of a localized band of high soil pH unless subsequent practices are utilized, such as disking, in order to adequately mix the soil.

e. The planner shall recommend ~~buffer zones~~ setbacks around wells, springs, surface waters, sinkholes, and rock outcrops where manure, ~~or~~ biosolids, or industrial waste should not be applied. Such ~~buffer zones~~ setbacks recommended shall be consistent with criteria contained in Virginia Nutrient Management Standards and Criteria, Revised ~~November 1995~~ 2004 unless alternative setbacks or buffers are specified in regulations or permits pertaining to the site. For sites impacted by other regulations or permits, the planner shall include the setbacks and buffers specified in regulations promulgated under §32.1-164.5 for sewage sludge, §62.1-44.17:1 for animal waste, §10.1-2100 et. seq. for sites in Chesapeake Bay Preservation areas, and permits for industrial waste land application. Land area within setback and buffer areas shall be deducted from field acreage to determine usable field acreage for nutrient application in nutrient management plans.

B. Manure production and utilization.

1. The planner shall estimate the annual manure quantity produced on each farm utilizing tables and forms contained in Virginia Nutrient Management Standards and Criteria, Revised ~~November 1995~~ 2004, or from actual farm records of manure pumped or hauled during a representative 12-month period.

2. The nutrient management plan shall state the total amount of manure produced and the amount that can be used on the farm, utilizing the information and methods provided in the Virginia Nutrient Management Standards and Criteria, Revised ~~November 1995~~ 2004. The plan shall discuss any excess manure and shall provide recommendations concerning options for the proper use of such excess manure.

C. Plans shall identify and address the protection from nutrient pollution of environmentally sensitive sites.

D. Plan maintenance and revisions.

1. A site-specific nutrient management plan developed in accordance with all requirements of these regulations, including specified crops or crop rotations, shall provide information on soil fertility and seasonal application of required nutrients for one to five years of crop production. Plans developed for a period of time greater than three years and up to five years ~~should generally~~ shall be limited to sites in permanent pasture or continuous hay ~~rotations~~.

2. The plan shall ~~indicate~~ state a need for immediate modification if ~~cropping systems, rotations, fields,~~ (i) animal numbers increase above the level specified in the plan, (ii) animal ~~type~~ types including intended market weights ~~, or management~~ are changed, ~~added or removed~~ (iii) additional imported manure, biosolids, or industrial waste that was not identified in the existing plan is to be applied to fields under the control of the operator, or (iv) ~~.- The planner shall state in the plan that such plan will be invalid if available land area for the utilization of manure decreases below the level necessary to utilize manure in the plan, or if changes in animal numbers or type affect land area necessary to utilize manure.~~ The plan shall also state a need for modification if cropping systems, rotations, or fields are changed and phosphorus will be applied at levels greater than crop nutrient needs based on soil analysis results as determined from procedures in Virginia Nutrient Management Standards and Criteria, Revised 2004.
3. Adjustments to manure production and application should be made if there are increases in animal numbers or changes in how animal waste is stored or applied, or when there are changes in nutrient content of manure resulting from changing feed ration, animal types, or new sampling and analysis for nutrient content and application rate calculations.
4. Soil analysis shall be recommended for each field at least once every three years to determine the soil fertility and pH, and to update the nutrient management plan.
5. Manure analysis shall be recommended before field application until a baseline nutrient content is established for the specific manure type on the corresponding farm operation. After a baseline nutrient content is established, a manure analysis shall be recommended at least once every three years for dry or semisolid manures, and at least once every year for liquid manures.
6. Modified top dressing or sidedressing application rates of nitrogen may be recommended if a pre-sidedress nitrogen test administered during the growing season indicates different levels of nitrogen than planning time calculations.

DOCUMENTS INCORPORATED BY REFERENCE

Virginia Nutrient Management Standards and Criteria, Department of Conservation and Recreation, Division of Soil and Water Conservation, Revised ~~November 1995~~ 2004.
Virginia Commercial Vegetable Production Recommendations for ~~1995~~ 2004, Virginia Cooperative Extension Service, Publication No. 456-420.
Technical Guide, Soil Conservation Services, United States Department of Agriculture.
Methods of Soil Analysis, Part 1, Physical and Mineralogical Methods, Second Edition, 1986, American Society of Agronomy.
Methods of Soil Analysis, Part 2, Chemical and Microbiological Properties, Second Edition, 1982, American Society of Agronomy.
Virginia Phosphorus Index Version 1.3 Technical Guide, Revised July 2004, Virginia Tech.
